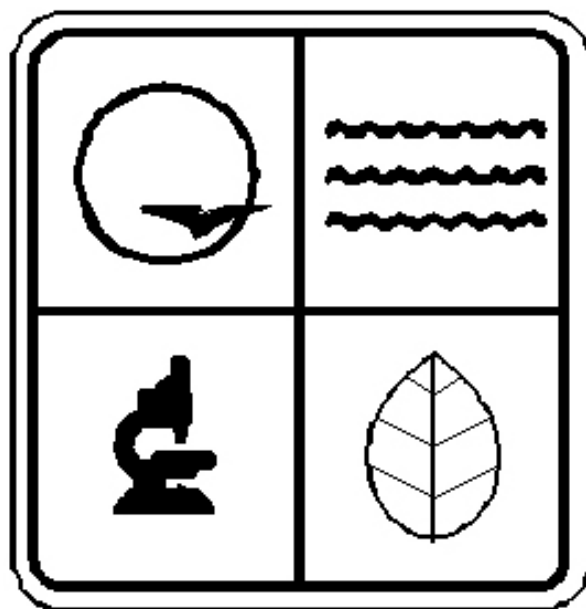


Kirksville Baseline

EDM Calibration Baseline
Adair County, Missouri



Established by

Land Survey Program
Missouri Department of Natural
Resources

1984

KIRKSVILLE EDM CALIBRATION BASELINE

The Kirksville EDM Baseline is located at the Clarence Cannon Memorial Airport on the west side of U.S. Highway 63 about 8.3km. (5.1 miles) south of its junction with Missouri Highway 6 in the south edge of Kirksville, Missouri. Permission to use baseline and any special instructions for access should be obtained from the weather station operator in the firehouse building just south of the airport terminal.

The baseline is parallel to and 45.7 meters (150 ft.) east of the east edge of the main north-south runway and consists of four stations, 0 meters; 150 meters; 400 meters; and 1,500 meters from north to south. Stations are brass caps stamped to identify the station and set flush with the ground surface in concrete. To aid in locating the stations metal pipes which project about 1 meter (3 ft.) above the ground surface, have been placed in metal sleeves in the ground just east of each station.

Station 0 meters is about 152.4 meters (500 ft.) south of the north end of the runway and east from a point 31 meters (102 ft.) south of the second runway light south of the north end of the runway.

Station 150 meters is east from the 5th light south of the north end of the runway.

Station 400 meters is east of a point 7.0 meters (23 ft.) south of the 9th light south of the north end of the runway (5th light north of the taxiway).

Station 1,500 meters is 176.8 meters (580 ft.) north of the south end of the runway and east from a point 5.4 meters (17.7 ft.) north of the 3rd light north of the south end of the runway (15th light south of the taxiway).

The baseline station elevations are as follows:

0 meter - 293.56

150 meter - 293.32

400 meter - 293.24

1500 meter - 293.23

Electronic Distance Measuring (EDM) Calibration Baselines in Missouri

The Missouri Department of Natural Resources has established 12 Electronic Distance Measuring (EDM) calibration baselines in Missouri. Despite the fact that modern equipment is highly sophisticated and provides a direct readout of the distance to the nearest hundredth of a foot or millimeter at push of a button, it can also give an erroneous reading. The EDM baseline will allow the operator to verify that the instrument is in calibration and the instrument is being operated properly.

Each EDM baseline consist of 4 monumented stations. The monuments are spaced nominally at 0 meters, 150 meters, 400 meters and 1100 to 1375 meters. Each station will be occupied with the EDM equipment and a measurement made to the 3 other stations. This will give a total of 12 measurements. The results will determine the scale factor and a system constant for the EDM instrument.

The EDM operator should use the same procedures as in every day fieldwork. This will not only confirm that the equipment is in good working order, but will ensure the complete method of collecting data. The measuring system includes not only the instrument but the tripods, tribrachs, prisms, thermometers and barometers/altimeters as well.

WHEN TO CALIBRATE YOUR INSTRUMENT?

- Upon receipt of a new instrument
- Immediately after each servicing
- Anytime the operator feels the instrument is not working properly
- Before and after DNR or other government agency contracts

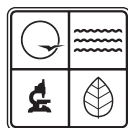
BEFORE RUNNING THE BASELINE PERFORM THE FOLLOWING

- Check and adjust optical plummets, bulls-eye bubbles and plumbing poles.
- Check thermometers and barometers/altimeters
- Make sure all tripods are rigid and stable
- Clean prisms
- Fully charge all batteries
- Have an EDM Calibration Report form for the baseline you are running.

When filling out the EDM Calibration Report form, fill in all lines that apply and add addition information if needed.

IMPORTANT NOTE

Before each measurement, enter the temperature and station pressure or absolute pressure into the instrument. The barometric pressure given over the radio and at airports has been reduced to sea level. DO NOT ENTER SEA LEVEL PRESSURE INTO THE EDM. One method used to find station pressure or absolute pressure is by elevation. The barometric pressure is reduced 0.1 inches of mercury for every 90 feet of elevation. So, to correct the sea level pressure obtained from the radio or airport, pick an average elevation for your area and divide by 90. Example: if the elevation is 1000 feet, dividing 1000 by 90 equals 11.11. Therefore, subtract 1.11 inches from the sea level pressure to obtain station pressure or absolute pressure.



STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY AND RESOURCE ASSESSMENT DIVISION

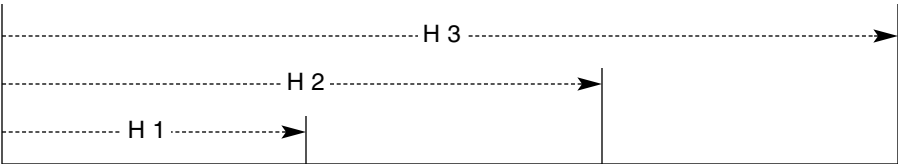
EDM CALIBRATION REPORT – KIRKSVILLE EDM BASELINE (HORIZONTAL)

DATE	COMPANY	REFLECTOR SETUP <input type="checkbox"/> Tripod with tribrach <input type="checkbox"/> Prism pole <input type="checkbox"/> Bipod pole
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INSTRUMENT TYPE AND MODEL

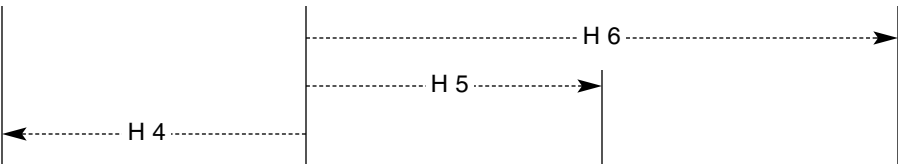
NOTE: ALL DISTANCES SUBMITTED SHALL BE HORIZONTAL.

E.D.M. AT 0m

			
H 1 =	H 2 =	H 3 =	TEMP

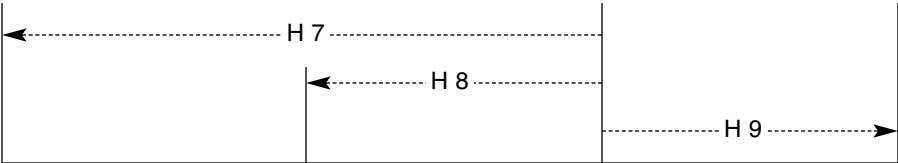
H 1 = (150.0055m)	H 2 = (400.0177m)	H 3 = (1500.1068m)	*PRESS
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E.D.M. AT 150m

			
H 4 =	H 5 =	H 6 =	TEMP

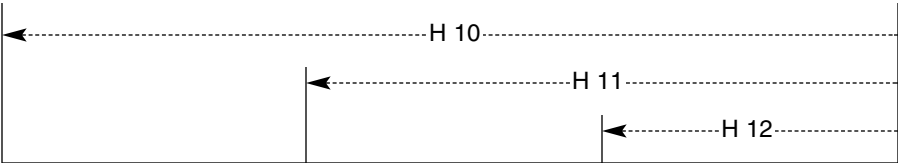
H 4 = (150.0055m)	H 5 = (250.0122m)	H 6 = (1350.1013m)	*PRESS
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E.D.M. AT 400m

			
H 7 =	H 8 =	H 9 =	TEMP

H 7 = (400.0177m)	H 8 = (250.0122m)	H 9 = (1100.0891m)	*PRESS
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E.D.M. AT 1500m

			
H 10 =	H 11 =	H 12 =	TEMP

H 10 = (1500.1068m)	H 11 = (1350.1013m)	H 12 = (1100.0891m)	*PRESS
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*Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.



STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY AND RESOURCE ASSESSMENT DIVISION

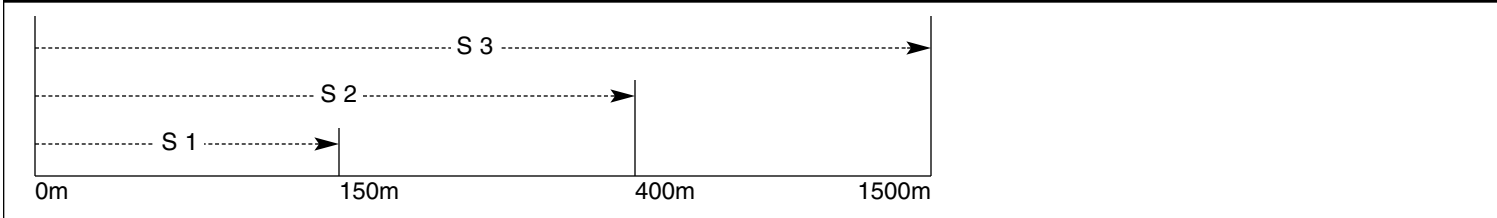
EDM CALIBRATION REPORT – KIRKSVILLE EDM BASELINE (SLOPE)

DATE	COMPANY	REFLECTOR SETUP <input type="checkbox"/> Tripod with tribrach <input type="checkbox"/> Prism pole <input type="checkbox"/> Bipod pole
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INSTRUMENT TYPE AND MODEL

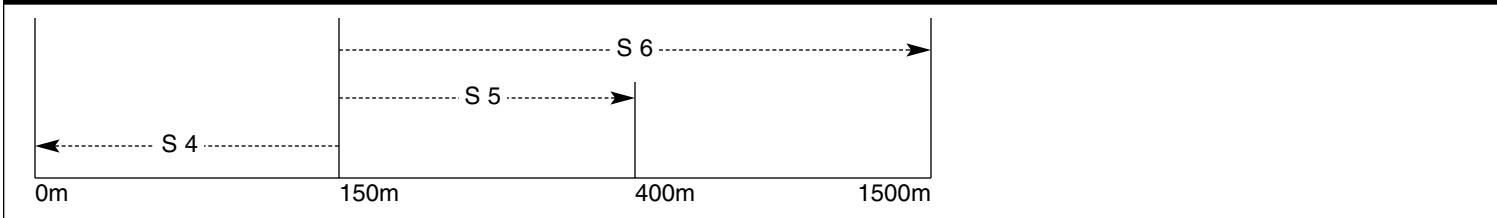
NOTE: ALL DISTANCES SUBMITTED SHALL BE SLOPE.

E.D.M. AT 0m



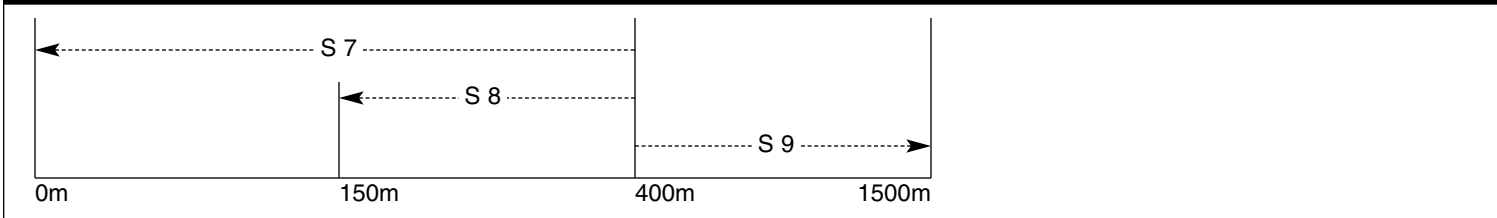
HI =	S 1 =	S 2 =	S 3 =	TEMP
	H 0 =	H 0 =	H 0 =	*PRESS

E.D.M. AT 150m



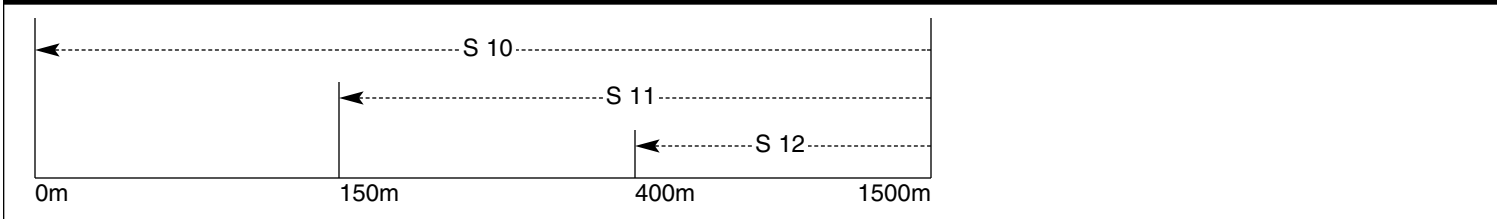
S 4 =	HI =	S 5 =	S 6 =	TEMP
H 0 =		H 0 =	H 0 =	*PRESS

E.D.M. AT 400m



S 7 =	S 8 =	HI =	S 9 =	TEMP
H 0 =	H 0 =		H 0 =	*PRESS

E.D.M. AT 1500m



S 10 =	S 11 =	S 12 =	HI =	TEMP
H 0 =	H 0 =	H 0 =		*PRESS

Heights or delta elevations between monuments.

0m = 293.56m 150m = 293.32m 400m = 293.24m 1500m = 292.23m

*Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.

